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(19)



## (54) SOLDIERS FOR CONCRETE FORMWORK

(71) We, BEACHLEY MACHINERY LIMITED, of Buttington Works, Beachley, Chepstow, Gwent, Wales, a British company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:-

This invention relates to an improved steel soldier for supporting concrete formwork.

Soldiers for this purpose are generally composed of twin identical beam elements set side by side with an intervening gap through which they are attached to the formwork, and tied together for support. These beam elements are generally of channel section, the two channels which form a soldier being arranged back-to-back. However, the channel, being an asymmetrical section, is not highly efficient as a beam.

The present invention has been devised with the general object of providing a steel soldier comprised of a pair of symmetrical sections, thereby improving the efficiency of the structure and providing a soldier of greater strength without substantially increasing the amount of material from which it is made.

In accordance with the present invention, a steel soldier for the purpose referred to comprises a pair of steel beam elements connected in laterally spaced opposite parallel relation by a tie plate at each end, each beam element having the form of a folded steel plate with a flat web portion extending into a pair of substantially tubular profile chords which are of substantially symmetrical configuration relative to the plane of the web.

The chords may be of circular, oval, rectangular or any other symmetrical geometric configuration but a triangular configuration is at present preferred.

One such preferred embodiment of the

invention is illustrated in the drawings accompanying our Provisional Specification, wherein:

Figure 1 is a plan view of a beam element;

Figures 2 and 3 are respectively side and front elevations of a soldier formed from two beam elements as in Figure 1; and

Figures 4 and 5 are cross-sections respectively on lines IV-IV and V-V of Figures 2 and 3.

Referring now mainly to Figure 1 the beam element there shown comprises a folded steel plate having a flat web 1 formed, as shown in Figure 2, with a series of three peripherally lipped lightening holes 2 at equal intervals along its length. The flat web 1 has substantially triangular profile side chords 3, the triangles being isosceles and substantially symmetrically disposed relative to the plane of the web 1. The free ends of the plate as indicated by arrows 'A', 'A' may be suitably attached to the web 1 to ensure rigid chord sections. These free ends of the plate may also be supported at intervals by the peripheral lips of the lightening holes.

Figures 2 to 5 inclusive show how two such beams, situated in side by side spaced relationship, are connected at their top and bottom ends by tie plates 4 to form a soldier.

It is believed that a soldier constructed as above specifically described will support the same load as the more traditional soldier composed of two channel section beam elements whilst requiring appreciably less material for its manufacture, thereby providing a lighter and more economical article.

## WHAT WE CLAIM IS:-

1. A steel soldier for supporting concrete formwork comprising a pair of steel beam elements connected in laterally spaced opposite parallel relation by a tie plate at each end each beam element having the form of a folded steel plate with a flat web

portion extending into a pair of substantially tubular chords which are of substantially symmetrical configuration relative to the plane of the web portion.

5 2. A steel soldier as claimed in claim 1 in which each web portion is formed at longitudinally spaced intervals with openings which are formed at their peripheries with lips.

10 3. A steel soldier as claimed in claim 2 in which the lips of the respective web portions are flared in opposite directions.

4. A steel soldier as claimed in any of claims 1 to 3 wherein said chords are of substantially triangular section.

15 5. A steel soldier as claimed in any of claims 1 to 3 wherein said chords are of substantially circular, oval or rectangular section.

6. A steel soldier as claimed in any of the preceding claims in which the free ends of the chords are attached to the adjacent web. 20

7. A steel soldier in accordance with any of claims 1 to 5 wherein the free ends of the chords are supported at intervals by the peripheral lips of the openings. 25

8. A steel soldier for supporting concrete formwork substantially as hereinbefore described with reference to, and as shown in, the provisional specification drawings. 30

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